A Corresponding States Approach for the Prediction of Surface Tension of Molten Alkali Halides

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The extended corresponding states principle has been applied on the prediction of surface tension for pure molten alkali halides. The model uses liquid density and vapour pressure data of the salts of interest and of the reference salt, chosen to be NaCl, as the input for the calculation of temperature dependent equivalent substance reducing ratios.

The model described here has already been applied in the prediction of viscosity and thermal conductivity of pure molten alkali halides [1]. Calculations were also made using the simple two-parameter corresponding states principle, with the melting temperature and corresponding density as scale factors. Agreement between calculated and experimental data is within 10% to 15%, for most of the salts studied.

[1] N. Galamba, C.A. Nieto de Castro, I. Marrucho, and J.F. Ely, paper presented at the 15th ECTP, Würzburg, Germany, September 1999; High Temperatures-High Pressures, 2000 (in press).